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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,145	02/27/2002	Yutaka Ozawa	111773	6602

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EXAMINER

SHAPIRO, LEONID

ART UNIT PAPER NUMBER

2673

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,145

Applicant(s)

OZAWA, YUTAKA

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

1. The drawings are objected to because:

In Fig. 1 DL(m-1) and DLm need to be replaced DL(n-1) and DLn as in the description on page 3, paragraph 0009.

In Fig. 2a for subfield SF3, TD after Ta need to be replaced with Tb, as in the rest of subfields.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 7, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wani et al. (US Patent No. 6, 236, 380 B1) in view of Rader (US Patent No. 5,867, 140).

As to claim 1, Wani et al. teaches a method of driving a plurality of display elements arranged in a matrix (See Fig. 2, items N and M), a gray level (See Col. 3, Lines 12-13) that the display element should display through at least one frame period of plurality of frame periods (See Fig. 1, items b0-b7, Col. 3, Lines 10-26), by using a plurality of scanning lines for supplying a scanning signal that selects the display element (See Fig. 2, items SCN1-SCN500, Col. 3, Lines

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50-56) and a plurality of data lines for supplying a data signal that specifies the gray level (See Fig. 2, items D1-Dm, Col. 3, Lines 50-56), the method comprising: a first supplying step of supplying the scanning signals to certain scanning lines of the plurality of scanning lines (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 5-13), a second supplying step of supplying the scanning signal to both the certain scanning lines and scanning lines other than certain scanning lines of the plurality of scanning lines (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 13-33).

Wani et al. does not show the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level and the other scanning lines corresponding to display elements included in the other part of the region for not displaying the gray level other than the certain part of the region.

Rader teaches the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level (See Fig. 3, item 305, Col.2, Lines 22-24 and 26-30) and the other scanning lines corresponding to display elements included in the other part of the region for not displaying the gray level other than the certain part of the region (See Fig. 3, item 303, Col.2, Lines 22-26 and Lines 31-42)

It would have been obvious to one of ordinary skill in the art at the time of the invention to form certain regions as shown by Rader in the Wani et al. method in order to conserve power in first operating mode (See Abstract in the Rader reference).

As to claim 10, Wani et al. teaches a electronic apparatus in which, to display a gray level (See Col. 3, Lines 12-13) to be displayed through at least one frame period of a plurality of frame periods specified by the image data (See Fig.1, items b0-b7, Col. 3, Lines 10-26), a plurality of scanning lines for supplying a scanning signals that selects the display elements arranged in a

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matrix (See Fig. 2, items SCN1-SCN500, Col. 3, Lines 50-56) and a plurality of data lines for supplying a data signal that displayed the gray level (See Fig. 2, items D1-Dm Col. 3, Lines 50-56), the scanning signals selecting the plurality of display elements items (See Fig. 2, items SCN1-SCN500, Col. 3, Lines 50-56) and the data signals specifying gray levels to be displayed by the plurality of the display elements (See Fig. 2, items D1-Dm, Col. 3, Lines 50-56), the electronic apparatus comprising: a display circuit that displays the image data, the display circuit supplying the scanning signals to certain scanning lines of the plurality of scanning lines (See Figs. 1-2, items SCN1-SCN500, Col.2, Lines 5-13); supplying the scanning signal to both the certain scanning lines and the other than scanning lines of the plurality of scanning lines, excluding the certain scanning lines, to make gray level undisplayed (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 13-33).

Wani et al. does not show the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level, the other scanning lines corresponding to display elements included in the other part of the region, excluding the certain part of the region, an input circuit that inputs information to specify the image data, a production circuit that produced the image data according to the information inputted from the input circuit.

Rader teaches the certain scanning lines corresponding to display elements included in a certain part of the region for displaying gray level (See Fig. 3, item 305, Col. 2, Lines 22-24 and Lines 26-30), the other scanning lines corresponding to display elements included in the other part of the region, excluding the certain part of the region (See Fig. 3, items 303, 305, Col.2, Lines 22-26 and Lines 31-42) and an input circuit that inputs information to specify the image data (See Fig. 3, items 304,318, 312, from Col.3, Line 64 to Col. 4, Line 5) a production circuit

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that produced the image data according to the information inputted from the input circuit (See Fig. 4, items 400, 406, 420, 422, Col. 4, Lines 15-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to form certain regions and use an input and production circuit as shown by Rader in the Wani et al. apparatus to display data produced by the production circuit in order to conserve power in first operating mode (See Abstract in the Rader reference).

As to claims 2-3, 7, Wani et al. teaches the first (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 13-16) and second supplying step (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 10-11) is performed in each or at least once in each of the frame periods.

As to claim 4, Wani et al. teaches each of the frames periods has a plurality of subfield periods each used for performance of one of the first and second supplying steps (See Fig. 2, items SCN1-SCN500, Col. 2, Lines 10-16).

As to claims 5-6, Wani et al. teaches the second supplying step (second supplying step is equivalent to full scanning) is performed in one subfield of the plurality of subfields included in the plurality of frame periods, and the first supplying step (first supplying step is equivalent to partial scanning) is performed in subfield other the one subfield (See Figs. 1-2, Col. 3, Lines 27-38).

As to claim 8, Wani et al. teaches a period of second supplying step (second supplying step is equivalent to full scanning) is longer than period of the first supplying step (first supplying step is equivalent to partial scanning) (See Figs. 1-2, Col. 3, Lines 34-48).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wani et al. and Rader as applied to claim 1 above, and further in view of Burgan et al. (US Patent No. 5, 805,121).

Wani et al. and Rader do not show a step of applying the data signal making the display element undriven to the data line corresponding thereto when supplying the scanning signals to the other scanning lines.

Burgan et al. teaches a step of applying the data signal making the display element undriven to the data line corresponding thereto when supplying the scanning signals to the other scanning lines (See Fig. 4, BP2-FP3, Col. 4, Lines 43-50).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the step as shown by Burgan et al. in Rader and the Wani et al. apparatus in order to apply an improved and lower power technique for establishing an off or standby mode for pixels in an LCD (See Col. 1, Lines 34-40 in the Burgan et al. reference).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Blouin et al. (US Patent No. 6, 075,510) reference discloses low power refreshing (smart display multiplexing).

The Moon (US Patent no. 5,926,173) reference discloses circuit for driving liquid crystal display having power saving feature.

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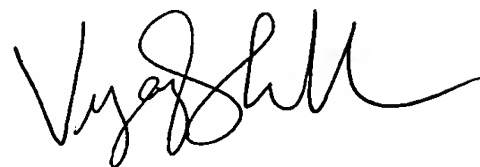
Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Is



**VIJAY SHANKAR
PRIMARY EXAMINER**